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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,341	11/08/2000	Pieter Straasheijm	209127.0051/15U1	1896

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AKIN GUMP STRAUSS HAUER & FELD L.L.P.
ONE COMMERCE SQUARE
2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103-7013

EXAMINER

REKSTAD, ERICK J

ART UNIT	PAPER NUMBER
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2613

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DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,341

Applicant(s)

STRAASHEIJM, PIETER

Examiner

Erick Rekstad

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is in response to Applicant's Amendment dated March 11, 2004 in response to USPTO Office Action dated November 10, 2003.

The cancellation of claims 2 and 5 has been noted.

The amendment to claim 6 has overcome the objection to the claim.

The amendment to the Figures 3A-3B and the addition of Figure 5 has overcome the objection to the Figures.

In regards to applicant's response to the rejection of claim 1 under 35 U.S.C. § 102(b) as being anticipated by Kondo. The applicant states that Kondo does not teach the limitations of claim 1. Applicant specifically states that the macroblock is well known to be of size 16x16. Kondo does not state the size of a macroblock. US Patent 6,560,371 to Song et al. teaches the macroblock can be any size from one pixel to a full frame (Col 3 Lines 64-67 and Col 4 Lines 1-3). Song further teaches in Figure 3, an equivalent hierarchical pixel reduction to Kondo (Kondo, Figs. 9A-C). The figure clearly shows the third stage (Song, 330 and Kondo Fig. 9C) contains one block (Song, 331) that is produced from four blocks (Song, 312a-d and Kondo Fig. 9A). It would have been obvious to one of ordinary skill in the art at the time of the invention that a macroblock can be any size from one pixel to a full frame. It would have been obvious to one of ordinary skill in the art at the time of the invention that the third stage performs a search using four macroblocks.

The response to the rejection of claims 3, 4 and 12 by the applicant is overcome by the clarification of a macroblock stated above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7, 8, 9, 10, and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,576,772 to Kondo in view of US Patent 6,560,371 to Song et al.

[claim 1]

Kondo describes a method of finding motion vectors for use in MPEG video encoding, the method comprising:

Generating from a full frame (Fig 9A), (i) a first scaled frame (Fig. 9B) having a reduced number of pixels as compared to the full frame and (ii) a second scaled frame (Fig. 9C) having a reduced number of pixels as compared to the first scaled frame;

Performing a first, full, best match search of the second scaled frame to identify rough motion vectors (Col. 8 Lines 27-57, Col. 9 Lines 50-51);

Performing a second best match search using the rough motion vectors identified by the first search, within a limited range in the x and y directions for each macroblock of the first scaled frame to identify intermediate motion vectors (Col. 10 Lines 9-37, Fig. 10B); and

Performing a third best match search using the intermediate motion vectors identified by the second search within a limited range in the X and Y directions for each macroblock of the full frame to identify final motion vectors (Col.10 Lines 41-67, Fig. 10C).

Kondo does not specifically teach the size of a macroblock. Song teaches the macroblock can be any size from one pixel to a full frame (Col 3 Lines 64-67 and Col 4 Lines 1-3). Song further teaches in Figure 3, an equivalent hierarchical pixel reduction to Kondo (Kondo, Figs. 9A-C). The figure clearly shows the third stage (Song, 330 and Kondo Fig. 9C) contains one block (Song, 331) that is produced from four blocks (Song, 312a-d and Kondo Fig. 9A). It would have been obvious to one of ordinary skill in the art at the time of the invention that a macroblock can be any size from one pixel to a full frame. It would have been obvious to one of ordinary skill in the art at the time of the invention that the third stage performs a search using four macroblocks.

[claim 6]

The scaled frames for the reference frame are produced after obtaining the reference frame from an inverse discrete cosine transform (Col 11 Lines 32-36, Fig 1 and 11A)

[claims 7 and 8]

Kondo describes the limited range of the second and third search is $-1, 0, +1$ pixels (blocks) (Col 10 Lines 8-67, Figs 10B-10E).

[claim 9]

Kondo suggests an optional addition to the motion vector detector that provides one half-pixel accuracy rather than one pixel accuracy. Kondo also suggests that the hierarchical stages consist of any number of stages greater than 2 (Col 16 Lines 10-14). [claims 10 and 11]

Kondo describes the method as recited in claim 1 wherein the first scaled frame is a one-half scaled frame having one-fourth of the number of pixels as a full frame and the second scaled frame is a one-fourth scaled frame having one sixteenth of the number of pixels of a full frame (Col 8 Lines 13-16, Fig 9A-9C, Fig 10A-10C).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo and Song in view of US Patent 5,485,210 to Lim et al.

Kondo and Song teach the use of the method as required by claim 1. Kondo does not teach the use of identifying a scene change and obtaining a new reference frame. Lim teaches using the same block matching technique used for determining the motion vector to also determine a scene change (Col 1 Lines 65-67, Col 2 Lines 1-16, Col 4 Lines 65-67, Col 5 Lines 1-13). The scene change detection causes a the original image to be sent rather than the residual. It is well known in the art that when an original image is sent the image is considered to be an I frame in the MPEG format. It would be obvious to one skilled in the art at the time of the invention to combine Kondo's method of finding motion vectors with Lim's scene change detector in order to be able to use the same block matching technique for both finding motion vectors and determining scene changes.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo and Song in view of US Patent 6,430,222 to Okada.

Kondo and Song teach the use of the method as required by claim 1. Kondo does not teach the identification of a still frame which can be deleted. Okada teaches the method of skipping the coding of macroblocks that have little difference from that of the previous frame Col 8 Lines 40-50). It would be obvious to one skilled in the art at the time of the invention to combine Kondo's method of finding motion vectors with Okada's method of skipping redundant frames in order to reduce the encoding of unnecessary video information.

Claim 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo.
[claim 12]

Kondo and Song teach the use of the method as required by claim 1. Kondo does not specifically point out that the full frame is an I frame. It is well known in the art that when encoding in MPEG format an I frame is used as a reference frame for encoding P and B frames. It would be obvious to one skilled in the art at the time of the invention that an I frame would be used as the full frame in order to produce the needed reference frames for encoding the P and B frames.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


US Patent 5731850 to Maturi et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 703-305-5543. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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